APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/495,207	01/31/2000	Robert E. Robotham	1400.4100242	4551

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EXAMINER
PHILPOTT, JUSTIN M

ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 08/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 June 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle,* 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed June 10, 2005 have been fully considered but they are not persuasive.

1.   First, applicant argues (page 2, third paragraph) that Soirinsuo does not teach a plurality of cell buffers as recited in applicant's claims. However, while col. 10, lines 58-60 of Soirinsuo recite buffering cells in a buffer, the remainder of the passage (i.e., col. 10, lines 61-65) clearly indicates the cell buffer is one of a plurality of cell buffers (e.g., see "buffers" in lines 63 and 65). Thus, applicant's argument is not persuasive.

2.   Second, applicant argues (page 2, fourth paragraph) that Soirinsuo does not teach queuing the identity of a virtual connection when cells that constitute a complete packet are buffered in a cell buffer, as recited in applicant's claims. However, Soirinsuo clearly teaches controller 1120 operates in accordance with the processes of FIGS. 9 and 10 (e.g., see col. 10, lines 13-15). Further, the process of FIG. 10 teaches that the scheduler implementing the process transmits next available complete packets of cells upon completion of transmission of a previous complete packet of cells (e.g., see col. 9, line 53 – col. 10, line 21), implying an indicator of the next available complete packet is buffered, or queued, for such access by the scheduler. Still further, Soirinsuo also discloses that the buffer management subsystem *schedules* transmission of packets after the last cell of the packet has arrived (e.g., see col. 8, lines 25-41), inherently requiring an indicator, or identity, of the connection for scheduling. Thus, applicant's argument is not persuasive.

3.   Third, applicant argues (page 2, fifth paragraph) that Soirinsuo does not teach obtaining

prioritization information for the merged virtual connections. However, as discussed in the

previous office action, and repeated herein, Soirinsuo teaches obtaining prioritization for the

merged virtual connections by specifically disclosing four service classes with various priorities

(e.g., see col. 7, line 18 – col. 8, line 41). Still further, Soirinsuo teaches priorities of the

connections are utilized for determining scheduling (e.g., see col. 8, lines 36-41). Thus,

applicant's argument is not persuasive.

4.   Fourth, applicant argues (page 3, first paragraph) that Soirinsuo does not teach generating

a cell stream as recited in applicant's claims. However, Soirinsuo teaches generating a cell

stream for a merged virtual connection (e.g., see col. 8, lines 25-41) based on prioritization

information and virtual connection identities (e.g., based on priorities and VCC, see col. 7, line 1

– col. 8, line 41), wherein the merged virtual connection is identified by a merged virtual

connection identifier (e.g., VCI, see VPI/VCI Translation 934 in FIG. 9, as well as col. 8, line 42

– col. 9, line 51), and wherein each cell in the cell stream includes the merged virtual connection

identifier (e.g., each cell in the cell stream includes a VCI, see col. 8, line 47 – col. 9, line 52).

Thus, applicant's argument is not persuasive.

5.   Fifth, applicant argues (page 3, second paragraph to page 4, first paragraph) that Benson

teaches pointers and not cells or virtual connections, and thus, Soirinsuo in view of Benson

cannot teach applicant's claims. However, in response to applicant's arguments against the

references individually, one cannot show nonobviousness by attacking references individually

where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413,

208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir.

1986). The queuing teachings of Benson applied to the queuing within the method of Soirinsuo advantageously combine to provide improved communication via reduced memory requirements and lower latency (e.g., see Benson, col. 2, lines 66-67), and result in the teaching recited in applicant's claims. Thus, applicant's argument is not persuasive.

6.   Sixth, applicant argues (page 4, second paragraph) that Benson teaches away from applicant's claims by reciting, "only read requests having the predefined priority are placed into the request FIFO 210". However, Benson clearly teaches connections each have a predefined priority, and dequeuing (e.g., via read requests) is implicitly performed within intervals since read requests that are not of a particular predefined priority are not implemented during certain intervals when the amount of memory consumed is above a particular level (e.g., see col. 10, lines 55-63). Thus, applicant's argument is not persuasive.

7.   Seventh, applicant argues (page 5, first and second paragraphs) that Soirinsuo does not teach a plurality of cell buffers as recited in applicant's claims. However, while col. 10, lines 58-60 of Soirinsuo recite buffering cells in a buffer, the remainder of the passage (i.e., col. 10, lines 61-65) clearly indicates the cell buffer is one of a plurality of cell buffers (e.g., see "buffers" in lines 63 and 65). Thus, applicant's argument is not persuasive.

8.   Eighth, applicant argues (page 6, first paragraph) that Soirinsuo does not teach allocating bandwidth based on class. However, Soirinsuo clearly teaches accommodating and identifying a plurality of classes (e.g., constant bit-rate CBR, variable bit-rate VBR, etc., see col. 7, lines 37-50), wherein it is implicit that accommodating various bit-rate parameters corresponds to allocation of bandwidth. Thus, applicant's argument is not persuasive.

9.   Ninth, applicant asserts (page 6, second paragraph) that the priority scheduler of

Soirinsuo is different from, and does not teach the limitations of, applicant's "prioritization

table". However, applicant fails to provide any reasoning or support for such an assertion, and

thus, applicant fails to provide a persuasive argument.

10.   Tenth, applicant argues (page 6, fifth paragraph) that Soirinsuo does not teach the

limitations recited in applicant's claims 9 and 33. However, as discussed in the previous office

action, and repeated herein, Soirinsuo teaches generating a cell stream by combining the cell

stream of a first virtual connection (e.g., VCC_1) with a cell stream of at least a second virtual

connection (e.g., VCC_2), wherein the virtual connection identifier corresponding to the second

virtual connection is different than the first virtual connection identifier. While Soirinsuo may

not specifically disclose that, e.g., a first virtual connection (e.g., VCC_1) comprises a merged

virtual connection and that the merged virtual connection is further merged with a second virtual

connection, Soirinsuo teaches the method of providing a merged virtual connection (e.g., 450

VCC_{1-n}) comprising a plurality of virtual connections. At the time of the invention it would have

been obvious to one of ordinary skill in the art to utilize a first virtual connection (e.g., VCC_1)

comprising a merged virtual connection such as the merged virtual connection taught by

Soirinsuo (e.g., 450 VCC_{1-n}) in order to accommodate additional virtual connections. Thus,

applicant's argument is not persuasive.

11.   Eleventh, applicant argues (page 7, first paragraph) that despite Soirinsuo clearly

teaching the virtual connection merging system is included in a portion of a communication

switch (e.g., see col. 10, lines 35-42), it would not be obvious to one of ordinary skill in the art to

implement the system contained within the switch such that it is placed in the egress or ingress

portion of the switch. That is, applicant requests Examiner to provide evidence, aside from the

official notice taken in the previous office actions, that such an implementation would be

obvious to one of ordinary skill in the art. In response to this request, the following prior art

provides this well known teaching in the art: U.S. Patent No. 5,956,334 to Chu et al., U.S. Patent

No. 5,838,681 to Bonomi et al., U.S. Patent No. 5,812,527 to Kline et al., U.S. Patent No.

5,777,984 to Gun et al., and U.S. Patent Nos. 5,689,506, 5,689,505 and 5,689,500 to Chiussi et

al. Accordingly, it has been shown that it would be obvious to one of ordinary skill in the art to

implement the virtual connection system contained within the switch such that it is placed in the

egress or ingress portion of the switch.

Claim Rejections - 35 USC § 103

12.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

13.   Claims 1-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent

No. 6,148,001 to Soirinsuo et al. in view of U.S. Patent No. 6,026,090 to Benson et al.

Regarding claims 1, 10, 17 and 25, Soirinsuo teaches a method for merging a plurality of

virtual connections (e.g., VCC_1-VCC_n in FIG. 4) to form a merged virtual connection (e.g., 450),

comprising: buffering cells of each of the plurality of virtual connections into a corresponding

one of a plurality of cell buffers (e.g., see col. 10, lines 58-60), wherein each of the plurality of

virtual connections is identified by a virtual connection identifier (e.g., VCI 712 in FIG. 7);

queuing the identity of a virtual connection when cells that constitute a complete packet are

buffered in a cell buffer (e.g., via switch controller comprising state machine 1130, see col. 10,

lines 16-18); obtaining prioritization information for the merged virtual connection (e.g., service

classes, see col. 7, lines 37-50; and payload type PT, see col. 9, lines 7-32); and generating a cell

stream for the merged virtual connection based on the prioritization information and virtual

connection identities, wherein the merged virtual connection is identified by a merged virtual

connection identifier (e.g., see VPI/VCI Translation 934 in FIG. 9), wherein each cell in the cell

stream includes the merged virtual connection identifier. While Soirinsuo may not specifically

disclose queuing the identity (e.g., VCI) in a specific queue configuration, Soirinsuo teaches the

step of scheduling virtual connections in accordance with the completion of buffered packets

(e.g., see col. 9, lines 15-16) via a switch controller (e.g., see col. 10, lines 16-29). Furthermore,

Soirinsuo discloses that those skilled in the art will recognize that other methods of obtaining the

state of the received cells may be used without departing from the scope of the invention (col.

10, lines 18-21).

Benson also teaches a method for receiving cells, and further, specifically teaches

queuing an identifier in a queue (e.g., in the form of complete pointer 128) when cells that

constitute a complete queue are buffered in a corresponding cell buffer (e.g., complete queue

124, see col. 4, line 40 – col. 6, line 50 with reference to FIG. 2). Benson further teaches that it

is well known in the art to also identify when cells that constitute a complete packet are buffered

(e.g., see col. 2, lines 58-67), when suitable memory is available. Further, regarding claim 25,

Benson teaches dequeuing of cells is performed in intervals, where different classes receive

priority for different ones of the intervals (e.g., see col. 9, line 33 – col. 10, line 65 wherein

dequeuing is in accordance with a particular a rate, and different connections receive a particular

predefined priority which corresponds to the rate). The teachings of Benson provide

improvements in ATM communication such as reduced memory requirements and lower latency

(e.g., see col. 2, lines 66-67). Thus, at the time of the invention it would have been obvious to

one of ordinary skill in the art to apply the teachings of Benson to the method of Soirinsuo in

order to reduce memory requirements and reduce latency in ATM communications.

Regarding claims 2, 14, 18 and 26, Soirinsuo and Benson teaches dequeuing cells from

the plurality of buffers to produce the cell stream, wherein dequeuing of the cells is based on the

prioritization information (e.g., see col. 9, line 33 – col. 10, line 65).

Regarding claims 3, 11, 13, 19 and 27, Soirinsuo teaches each virtual connection

comprises prioritization information which includes class prioritization information (e.g., service

classes, see col. 7, lines 37-50; and payload type PT, see col. 9, lines 7-32).

Regarding claims 4, 12, 20 and 28, as discussed above regarding claims 1, 10 and 17,

Benson teaches the plurality of queues is a linked list configuration (e.g., see col. 5, lines 5-15

and FIG. 2 regarding pointer 128). Also, as discussed above, the teachings of Benson provide

improvements in ATM communication such as reduced memory requirements and lower latency

(e.g., see col. 2, lines 66-67). Thus, at the time of the invention it would have been obvious to

one of ordinary skill in the art to apply the teachings of Benson to the method of Soirinsuo in

order to reduce memory requirements and reduce latency in ATM communications.

Regarding claims 5, 21 and 29, Soirinsuo teaches the prioritization information allocates

available bandwidth on the merged virtual connection based on class by teaching the

prioritization information comprises service classes in accordance with various bit rate type requirements (e.g., CBR, VBR, see col. 7, lines 37-50).

Regarding claims 6, 22 and 30, Soirinsuo teaches prioritization information further comprises referencing a prioritization table (e.g., scheduler supporting priorities, see col. 10, lines 22-42) that stores an accessing sequence (e.g., buffer state list or weighted scheduling) for the plurality of queues.

Regarding claims 7, 23 and 31, Soirinsuo teaches generating the cell stream such that cells corresponding to different packets that are combined to produce the merged virtual connection are not intermingled (e.g., see col. 10, lines 29-35).

Regarding claims 8, 24 and 32, Soirinsuo teaches detecting an end of message indication that indicated a final cell for the complete packet (e.g., see col. 9, lines 7-8).

Regarding claims 9 and 33, as discussed above regarding claim 1, Soirinsuo teaches generating a cell stream by combining the cell stream of a first virtual connection (e.g., VCC_1) with a cell stream of at least a second virtual connection (e.g., VCC_2), wherein the virtual connection identifier corresponding to the second virtual connection is different than the first virtual connection identifier. While Soirinsuo may not specifically disclose that, e.g., a first virtual connection (e.g., VCC_1) comprises a merged virtual connection and that the merged virtual connection is further merged with a second virtual connection, Soirinsuo teaches the method of providing a merged virtual connection (e.g., 450 VCC_{1-n}) comprising a plurality of virtual connections. At the time of the invention it would have been obvious to one of ordinary skill in the art to utilize a first virtual connection (e.g., VCC_1) comprising a merged virtual

connection such as the merged virtual connection taught by Soirinsuo (e.g., 450 VCC_{1-n}) in order

to accommodate additional virtual connections.

Regarding claims 15 and 16, Soirinsuo teaches the virtual connection merging system is

included in a portion of a communication switch (e.g., see col. 10, lines 35-42). While Soirinsuo

may not specifically disclose the location of the virtual connection merging system is limited to

specifically either the ingress portion or egress portion of the communication switch, these

claims were rejected in the previous office action by the Examiner taking official notice that the

limitations recited in these claims are well known in the art; that is, it is well known in the art for

a virtual connection merging system to be located in the ingress or egress portion of a

communication switch. In Applicant's response to the previous office action, Applicant has

requested for proof that such teachings are well known in the art. In response to this request, the

following prior art provides this well known teaching in the art: U.S. Patent No. 5,956,334 to

Chu et al., U.S. Patent No. 5,838,681 to Bonomi et al., U.S. Patent No. 5,812,527 to Kline et al.,

U.S. Patent No. 5,777,984 to Gun et al., and U.S. Patent Nos. 5,689,506, 5,689,505 and

5,689,500 to Chiussi et al. Accordingly, it has been shown that it would be obvious to one of

ordinary skill in the art to implement the virtual connection system contained within the switch

of Soirinsuo such that it is placed in the egress or ingress portion of the switch.

Conclusion

14.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

15.　　Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Justin M. Philpott whose telephone number is 571.272.3162. The

examiner can normally be reached on M-F, 9:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Huy D. Vu can be reached on 571.272.3155. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Justin M Philpott

ALPUS H. HSU
PRIMARY EXAMINER